SECTION 09500

ACOUSTICAL CEILINGS

PART 1 GENERAL

1.01 RELATED SECTIONS

A. Division 15: Mechanical Requirements.

B. Division 16: Electrical Requirements.

1.02 SUBMITTALS

A. Comply with pertinent provisions of Section 01330.

B. Product Data: Submit for each type of product specified.

C. Coordination Drawings: Submit reflected ceiling plans, prepared by Installer for installation purposes, drawn accurately to scale and coordinated with related mechanical, electrical and other work above, penetrating, or connected to acoustical ceiling. Show ceiling suspension members, method of anchorage to building structure of hangers, size and location of initial access modules for acoustical tile ceilings (if any), and ceiling-mounted work including light fixtures, diffusers, grilles, and special moldings.

D. Samples for Verification: Submit each type of exposed finish required, prepared on samples of size indicated below. Where finishes involve normal color and texture variations, include sample sets showing the full range of variations expected.

1. 6 inch square samples of each acoustical panel type, pattern and color.
2. Full size samples of each acoustical tile type, pattern and color.
3. Set of 12 inch long samples of exposed runners and moldings for each color and system type required.

E. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

F. Product Test Reports: Indicate compliance of acoustical panel ceilings and components with requirements based on comprehensive testing of current products.

1.03 QUALITY ASSURANCE

A. Standards: Suspended ceiling materials, design and workmanship shall comply with the requirements for direct hung ceilings of ASTM C 635, ASTM C 636 and the provisions herein specified.

B. Installer Qualifications: Engage an experienced Installer who has completed acoustical panel ceilings similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.

C. Fire-Test-Response Characteristics: Provide acoustical panel ceilings that comply with the following requirements:
   1. Surface-burning characteristics of acoustical panels comply with ASTM E 1264 for Class A materials as determined by testing identical products per ASTM E 84.

D. Limitations: Ceilings shall not support material or other building components. Duct work, grilles, light fixtures, conduit, plumbing and like work shall have their own support systems and shall not use the ceiling system or suspension wires.

E. Substitutions: The standards contained in this Section are minimums. Any substitutions must, without exception, be manufactured of the same basic materials; meet or exceed all specification requirements of structural, functional, dimensional and appearance without deviation; and be accepted by the Architect

F. Requirements of Regulatory Agencies:
   1. California Building Code, Title 24, Part 2, Section 2501A.5.

G. Single-Source Responsibility for Ceiling Units: Obtain each type of acoustical ceiling panel from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying the Work.

H. Single-Source Responsibility for Suspension System: Obtain each type of suspension system from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying the Work.

1.04 DELIVERY, STORAGE AND HANDLING

A. Deliver acoustical ceiling units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination or other causes.

B. Before installing acoustical ceiling units, permit them to reach room temperature and stabilized moisture content.

C. Handle acoustical ceiling units carefully to avoid chipping edges or damaging units in any way.

1.05 PROJECT CONDITIONS

A. Space Enclosure: Do not install interior acoustical ceilings until space enclosed and weather-tight, wet-work in space completed and nominally dry, and work above ceilings completed, and until ambient conditions of temperature and humidity will be continuously maintained at values near those indicated for final occupancy.

B. Adhesive Installation: Do not install acoustic tile when room temperature exceeds 100 degrees F or when room or adhesive temperature is below 50 degrees F.

1.06 COORDINATION

A. Coordination of Work: Coordinate layout and installation of acoustical ceiling units and suspension system components with other work supported by, or penetrating through, ceilings, including light fixtures, HVAC equipment, fire-suppression system components (if any), and partition system (if any).

PART 2 PRODUCTS

2.01 SUSPENDED ACOUSTICAL PANEL

A. Acoustical Ceiling Panel:

1. Size: 2 x 4 feet.
2. Thickness: 3/4 inch.
3. Edge: Square Lay-in w/prelude XL exposed tee.
4. NRC: 0.70.
5. CAC: 35.
6. Light Reflectance: 0.90.
7. Fire Resist: Class A (UL)
8. Color: White.
9. Product: Armstrong Ultima 1913

B. Suspension System: Exposed direct hung.

1. Main runner and cross tee, conforming to Heavy Duty Classification of ASTM C 635, 15/16 inch face.
2. Hanger Wires: Galvanized carbon steel, ASTM A 641, soft temper, prestretched, yield-stress load of at least 3 times design load, but not less than 12 gage.
3. Edge Moldings: Manufacturer's standard channel molding for edges and penetrations of ceiling, with single flange of molding exposed, baked enamel finish, color to match main runner.
4. System Manufacturer: Armstrong
5. Product: Armstrong Prelude XL 15/16"
6. Color: White.

C. Hold-Down Clips: Where indicated, provide hold-down clips spaced 24 inches o.c. on all cross tees.

PART 3 EXECUTION

3.01 PREPARATION

A. Coordination: Furnish layouts for inserts, clips, or other supports required to be installed by other trades for support of acoustical ceilings.

B. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less-than-half width units at borders, and comply with reflected ceiling plans wherever possible.

3.02 INSTALLATION - SUSPENSION CEILING SYSTEM

A. General: Install acoustical panel ceilings to comply with publications referenced below per manufacturer's written instructions and CISCA's "Ceiling Systems Handbook".

1. Standard for Ceiling Suspension System Installations: Comply with ASTM C 636.
2. U.B.C.'s "Metal Suspension Systems for Acoustical Tile and for Lay-in Panel Ceilings": U.B.C. Standard 25-2.

B. Suspend ceiling hangers from building's structural members and as follows:

1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.
2. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
3. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers at spacings required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards and publications.
4. Secure wire hangers to ceiling suspension members and to supports above with a minimum of three tight turns. Connect hangers directly either to structures or to inserts, eye screws, or other devices that are secure; that are appropriate for substrate; and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
5. Space hangers not more than 48 inches (1200 mm) o.c. along each member supported directly from hangers, unless otherwise indicated; and provide hangers not more than 8 inches (200 mm) from ends of each member.

C. Secure Bracing wires to ceiling suspension members and to supports with a minimum of four tight turns. Suspend bracing from building's structural members as required for hangers, without attaching to permanent metal forms, steel deck, or steel deck tabs. Fasten bracing wires into concrete with cast-in-place or post installed anchors.

D. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels.

E. Install suspension system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.

F. Install acoustical panels with undamaged edges and fitted accurately into suspension system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide a neat, precise fit.
1. Arrange directionally patterned acoustical panels as follows:
   a. Install panels with pattern running in one direction parallel to long axis of space.
2. For square-edged panels, install panels with edges fully hidden from view by flanges of suspension system runners and moldings.

G. Install hold-down clips in areas indicated, in areas required by authorities having jurisdiction, and for fire-resistance ratings; space as recommended by panel manufacturer's written instructions, unless otherwise indicated or required.

3.03 CLEANING

A. Clean exposed surfaces of acoustical ceilings, including trim, edge moldings, and suspension members; comply with manufacturer's instructions for cleaning and touch-up of minor finish damage. Remove and replace work which cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION

Armstrong World Industries, Inc.

Ceiling & Suspension System Specification

Please understand that you are responsible for the accuracy of all project specifications, including any Armstrong guide specifications that you use.

ARMSTRONG SHALL NOT BE LIABLE FOR ANY DAMAGES ARISING OUT OF THE USE OF ANY OF ITS GUIDE SPECIFICATIONS.

Part 2-PRODUCTS

2.1 MANUFACTURERS

A. Ceiling Panels:

1. Armstrong World Industries, Inc.

2.2.0 ACOUSTICAL CEILING PANELS WITH EMBEDDED ANTENNAS

A. Acoustical Panels Type ACT-1:

1. Surface Texture: Fine
2. Pattern Cordination: Surface will coordinate with visual pattern of Speaker Panels specified in Division 16.
3. Composition: Mineral Fiber
4. Color: White
5. Size: 48in X 24in X 3/4in
6. Edge Profile: Square Lay-In for interface with Prelude XL 15/16" Exposed Tee.
7. Noise Reduction Coefficient (NRC): ASTM C 423; Classified with UL label on product carton, 0.70.
8. Ceiling Attenuation Class (CAC): ASTM C 1414; Classified with UL label on product carton, 35
9. Flame Spread: ASTM E 1264; Class A (UL)
10. Light Reflectance (LR): ASTM E 1477; White Panel: Light Reflectance: 0.90.
11. Dimensional Stability: HumiGuard Plus - temperatures up to 120 degrees F and high humidity excluding only exterior use, use over standing water, and direct contact with moisture .
12. Mold/Mildew Inhibitor: The front and back of the product have been treated with BioBlock, a paint that contains a special biocide that inhibits or retards the growth of mold or mildew, ASTM D 3273.
13. Acceptable Product: Ultima, 1913 as manufactured by Armstrong World Industries.

B. Acoustical Panels With Embedded Antennas1:

1. Surface Texture: Fine
2. Pattern Cordination: Surface will coordinate with visual pattern of Speaker Panels specified in Division 16.
3. Composition: Mineral Fiber
4. Color: White
5. Size: 48in X 24in X 3/4in
6. Edge Profile: Square Lay-In for interface with Prelude XL 15/16" Exposed Tee.
7. Surface Texture and color of embedded antenna panels should match the adjacent acoustical ceiling panels.
8. Noise Reduction Coefficient (NRC): ASTM C 423; Classified with UL label on product carton, 0.70.
9. Ceiling Attenuation Class (CAC): ASTM C 1414; Classified with UL label on product carton, 35
10. Fire Testing: Meets UL2043
11. Light Reflectance (LR): ASTM E 1477; White Panel: Light Reflectance: 0.90.
12. Dimensional Stability: HumiGuard Plus - temperatures up to 120 degrees F and high humidity excluding only exterior use, use over standing water, and direct contact with moisture .
13. Mold/Mildew Inhibitor: The front and back of the product have been treated with BioBlock, a paint that contains a special biocide that inhibits or retards the growth of mold or mildew, ASTM D 3273.
14. Acceptable Product: Ultima, 1913, WL4 as manufactured by Armstrong World Industries and Centurion Wireless Technologies.

2.2.0 SUSPENSION SYSTEMS

A. Components: All main beams and cross tees shall be commercial quality hot-dipped galvanized (galvanized steel, aluminum, or stainless steel) as per ASTM A 653. Main beams and cross tees are double-web steel construction with type exposed flange design. Exposed surfaces chemically cleansed, capping pre-finished galvanized steel (aluminum or stainless steel) in baked polyester paint. Main beams and cross tees shall have rotary stitching (exception: extruded aluminum or stainless steel).
   1. Structural Classification: ASTM C 635 Heavy Duty.
   2. Color: White and match the actual color of the selected ceiling tile, unless noted otherwise.
   3. Acceptable Product: Prelude XL 15/16" Exposed Tee as manufactured by Armstrong World Industries, Inc.

B. High Humidity Finish: Comply with ASTM C 635 requirements for Coating Classification for Severe Environment Performance where high humidity finishes are indicated.

1. SS Prelude Plus by Armstrong World Industries, Inc. - 100% Type 304 STAINLESS Steel.
2. AL Prelude Plus by Armstrong World Industries, Inc. - all ALUMINUM
3. Prelude Plus XL Fire Guard by Armstrong World Industries, Inc., G-60 Hot dipped galvanized /aluminum capping
4. Structural Classification: ASTM C 635 duty class.
5. Color: [Stainless for SS only][White aluminum] [Clear Anodized Aluminum]

C. Attachment Devices: Size for five times design load indicated in ASTM C 635, Table 1, Direct Hung unless otherwise indicated.

D. Wire for Hangers and Ties: ASTM A 641, Class 1 zinc coating, soft temper, pre-stretched, with a yield stress load of at least time three design load, but not less than 12 gauge.

E. Edge Moldings and Trim: Metal or extruded aluminum of types and profiles indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations, including light fixtures, that fit type of edge detail and suspension system indicated. Provide moldings with exposed flange of the same width as exposed runner.